NOvA Operations Report

February 2021

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Proton PMG Meeting

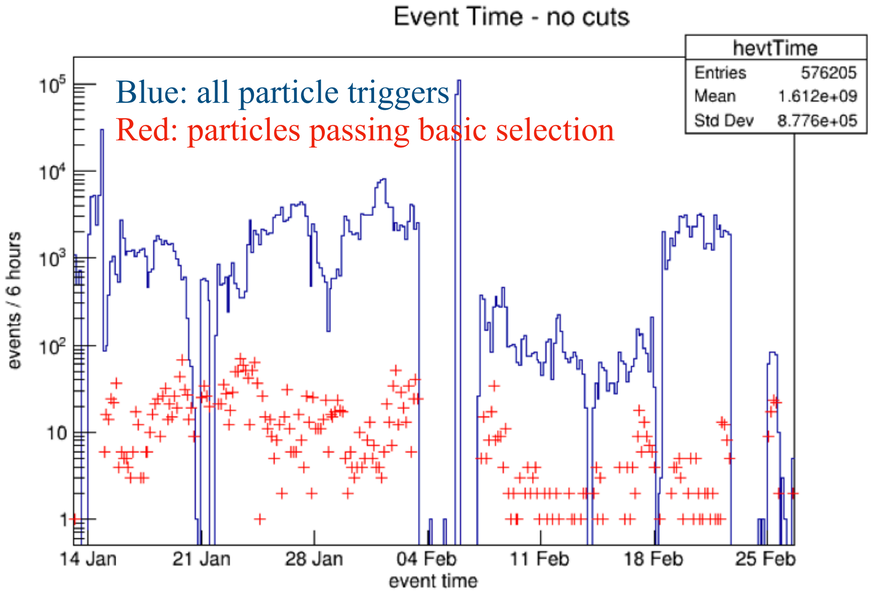
March 4, 2021

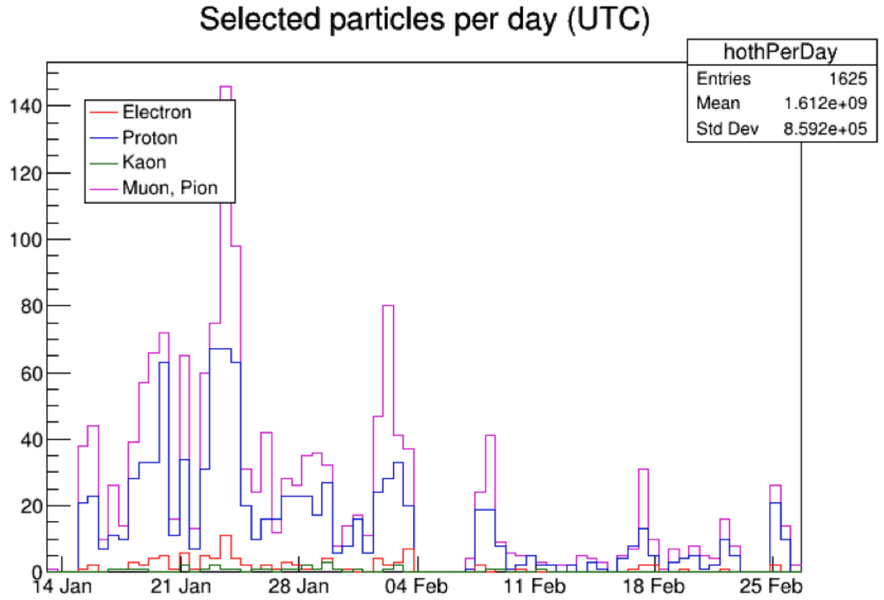
NOvA Status and Plans

- We continued doing web-based checklist shifts with shifters monitoring the detectors through screenshots of the DAQ VNC sessions from their laptops or home computers.
  - Google Voice service was working well for the last month as the main communication tool with the MCR.
  - We've been more familiar with the service, identified several known issues with the usage of the service and documented them in the wiki page for shifters to refer to.
- NuMI achieved a new power record on Feb. 18: **775 kW average power for an hour**.
  - Running at ~730 kW w/ SY w/o Muon, ~590 kW w/ SY w/ Muon.
  - Experts working on path toward 800+ kW delivery.
  - Thanks to all the accelerator operators and beam experts.

NOvA Test Beam Status and Plan

- Test Beam operations continue successfully, sharing the monitoring tools and DAQ experts with regular NOvA shifts.
- Initial beam tuning for both the primary and secondary beams has been completed; next step is to scan over various parameters to determine the optimal running configuration.
- Collecting good, analysis-quality, particles at a rate comparable to the previous period of operations.
  - ‘Golden period’ at the end of January has contributed more than half our dataset.
  - Actively trying to understand the beam conditions during that period and hopefully return to similar rates.

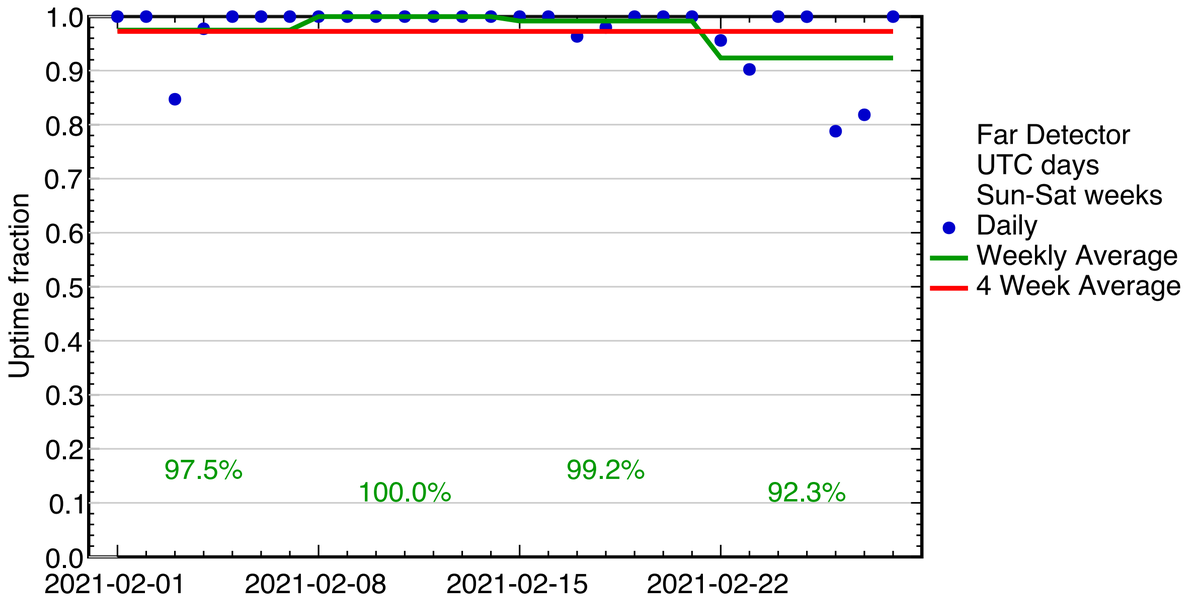


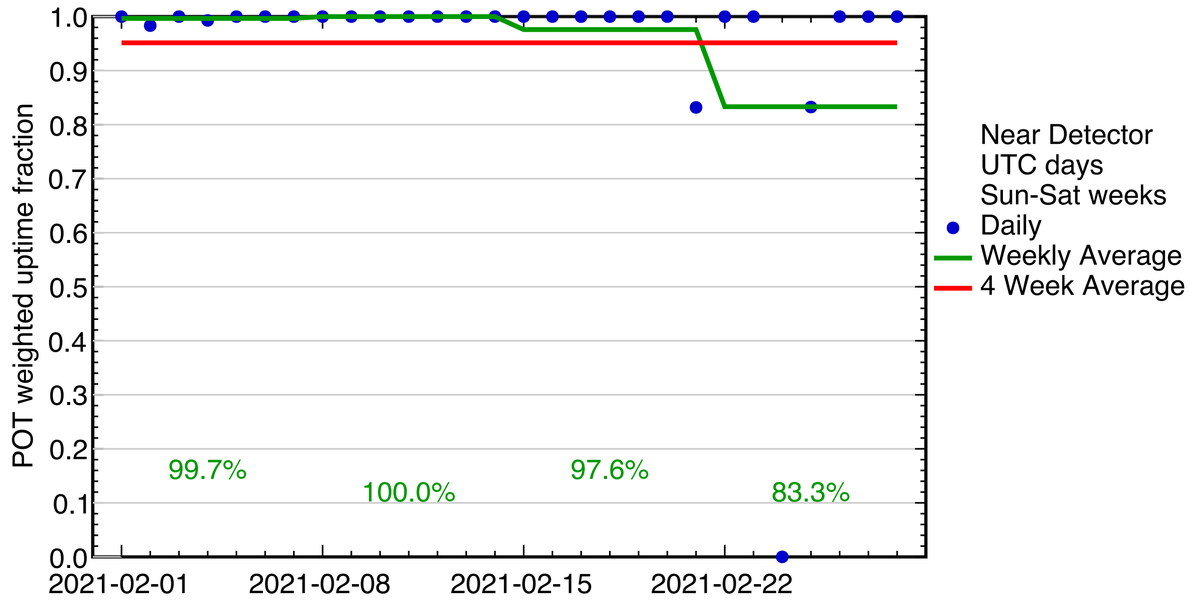


Operations Highlights

- There was a beam maintenance downtime from 2/3 to 2/6. We took the opportunity to
  - test a new configuration for the supernova and gravitational wave triggers.
  - test 4 DCS nodes that have been reinstalled with SL7, trying to understand what is working and what is not on SL7.
- There was a beam maintenance downtime from 2/23 to 2/24 for MI vacuum work. We took the opportunity to upgrade nodes for the near detector cluster to SL7. Total downtime of ND was about 37 hours.
  - Both near detector and far detector were not able to record beam data when beam returned in the afternoon of 2/24. So we called MCR to stop sending beam until the work completed.
- We had an extended far detector downtime on 2/26 due to an issue related to the file transfer system. Total downtime of FD was about 9.5 hours.

Detector Operations: Uptime

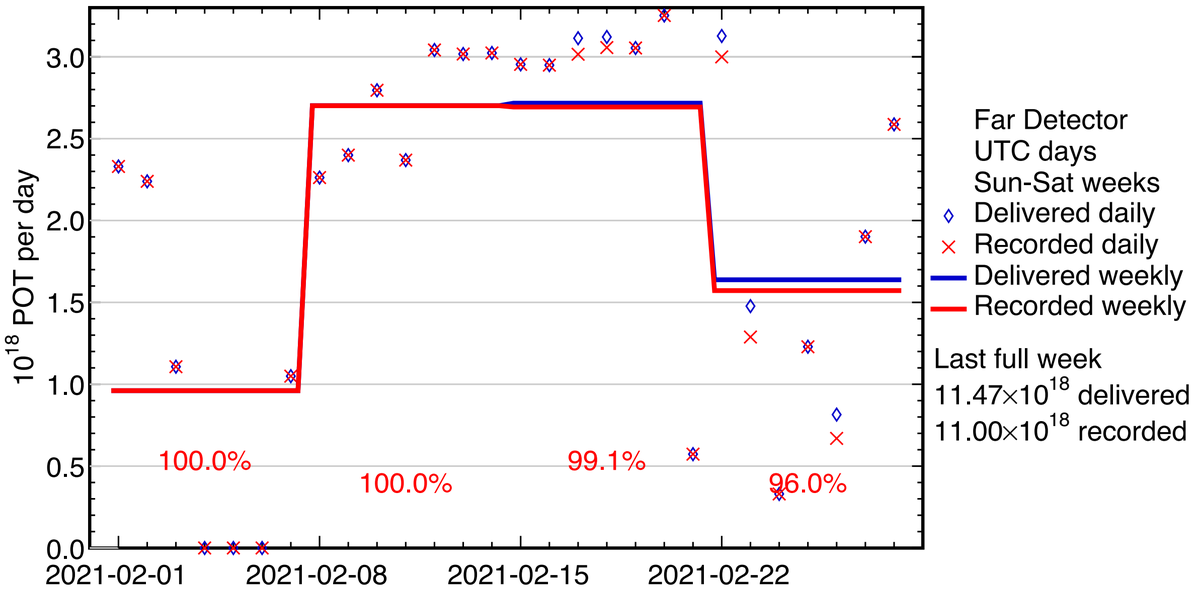


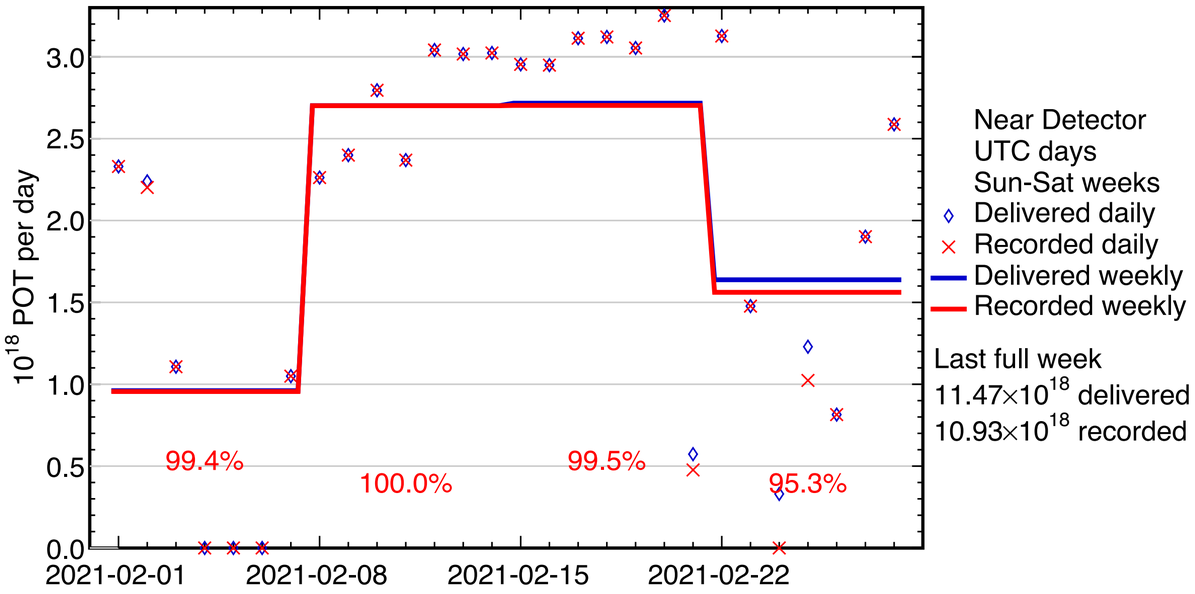


- Planned Downtimes: ~5 hours
  - Trigger testing: 2/3, 2/4
- Unplanned Downtimes: ~13.5 hours
  - Small DAQ crashes: 2/17, 2/18, 2/22, 2/23
  - The extended FD downtime: 2/26, 2/27

- Planned Downtimes: ~ 37 hours
  - Trigger testing: 2/4
  - ND nodes SL7 upgrading: 2/23-2/25
- Unplanned Downtimes: ~ 1 hour
  - Small DAQ crashes: 2/2, 2/21

Detector Operations: POT

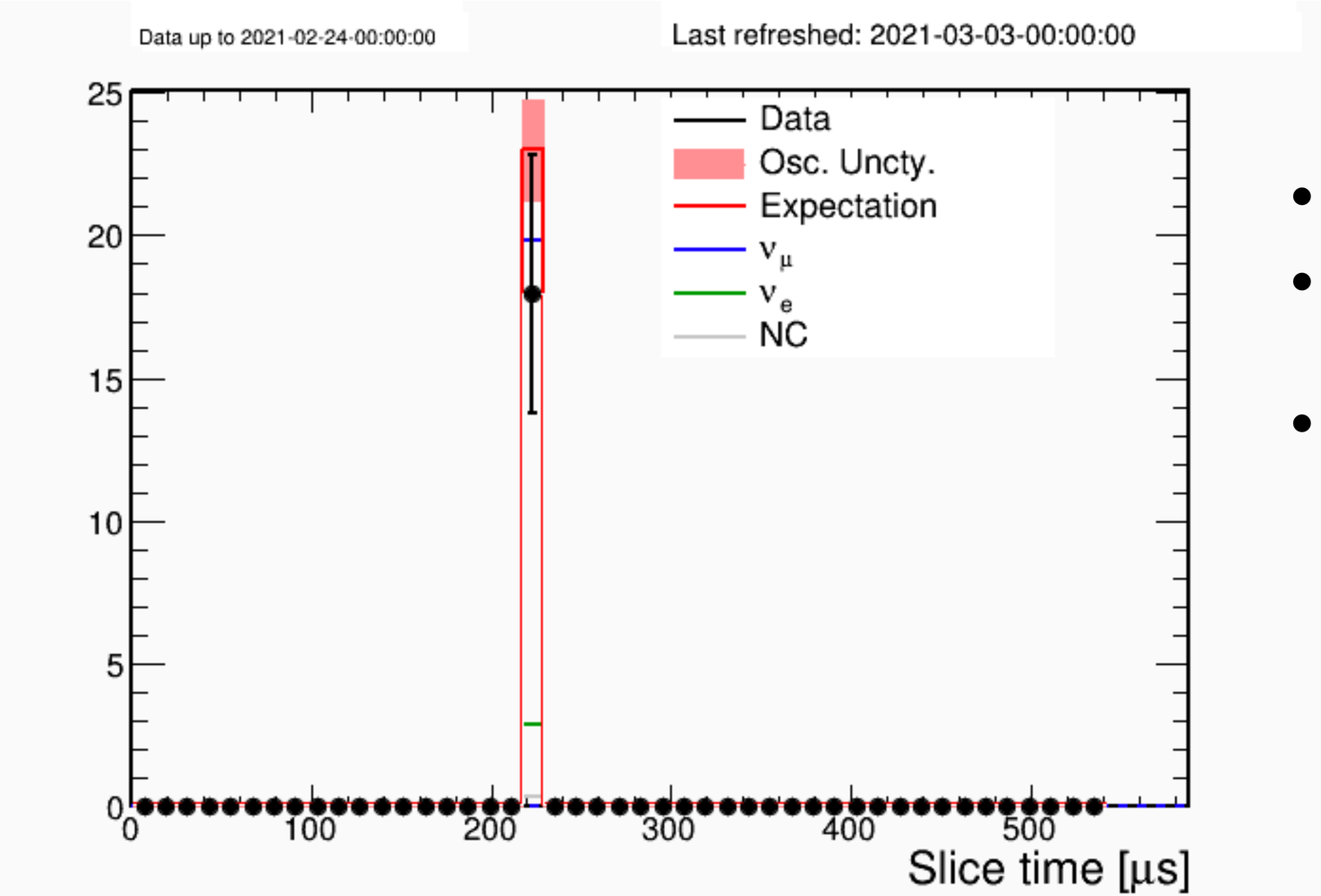




Far detector

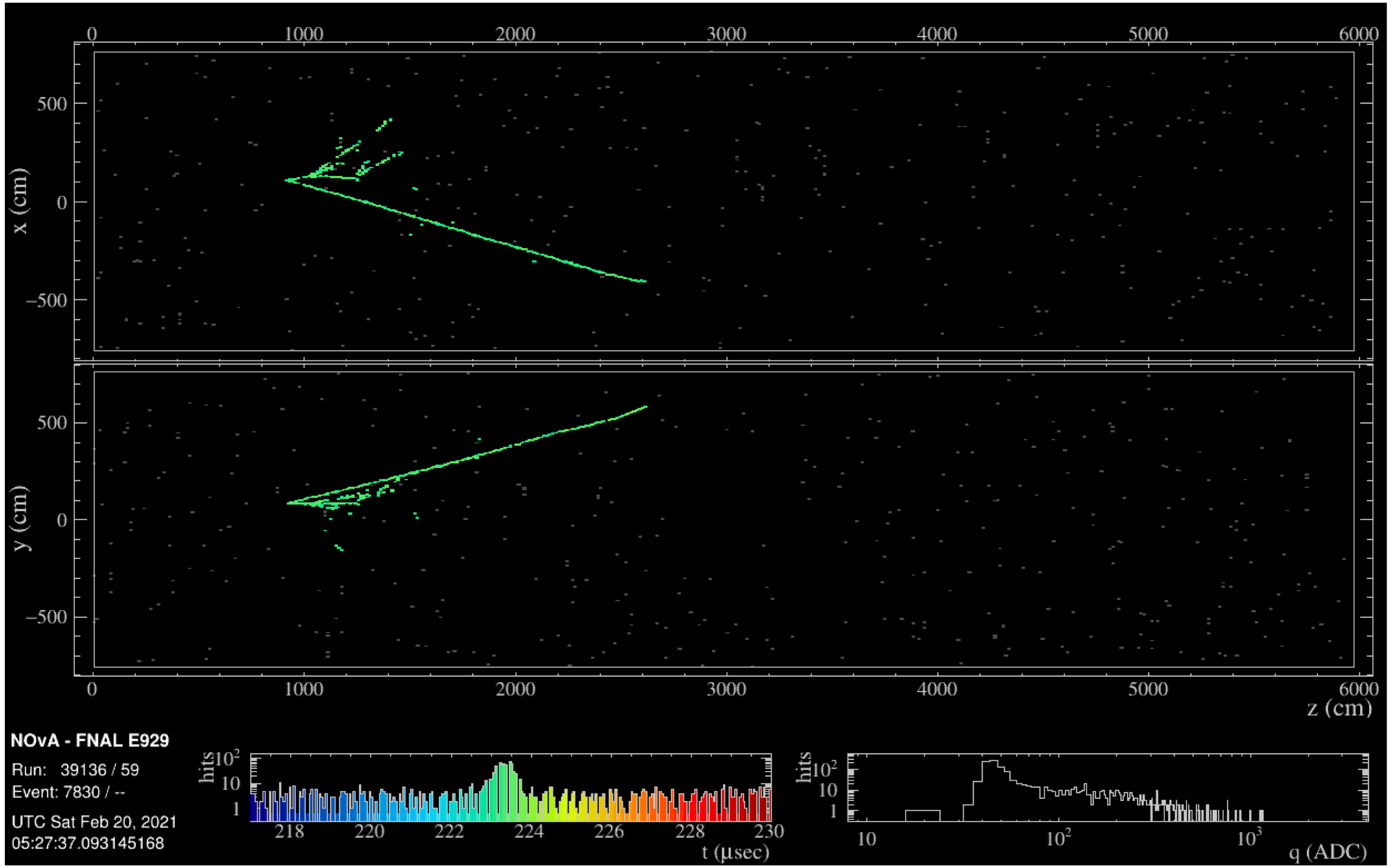
- Total RHC POT recorded: 12.69E20
- Total FHC POT recorded: 17.62E20 (14.94E20 14kT-equivalent)
- FY21 POT: 1.36E20 delivered, 1.34E20 recorded

Far Detector Neutrino Candidate Timing Peak

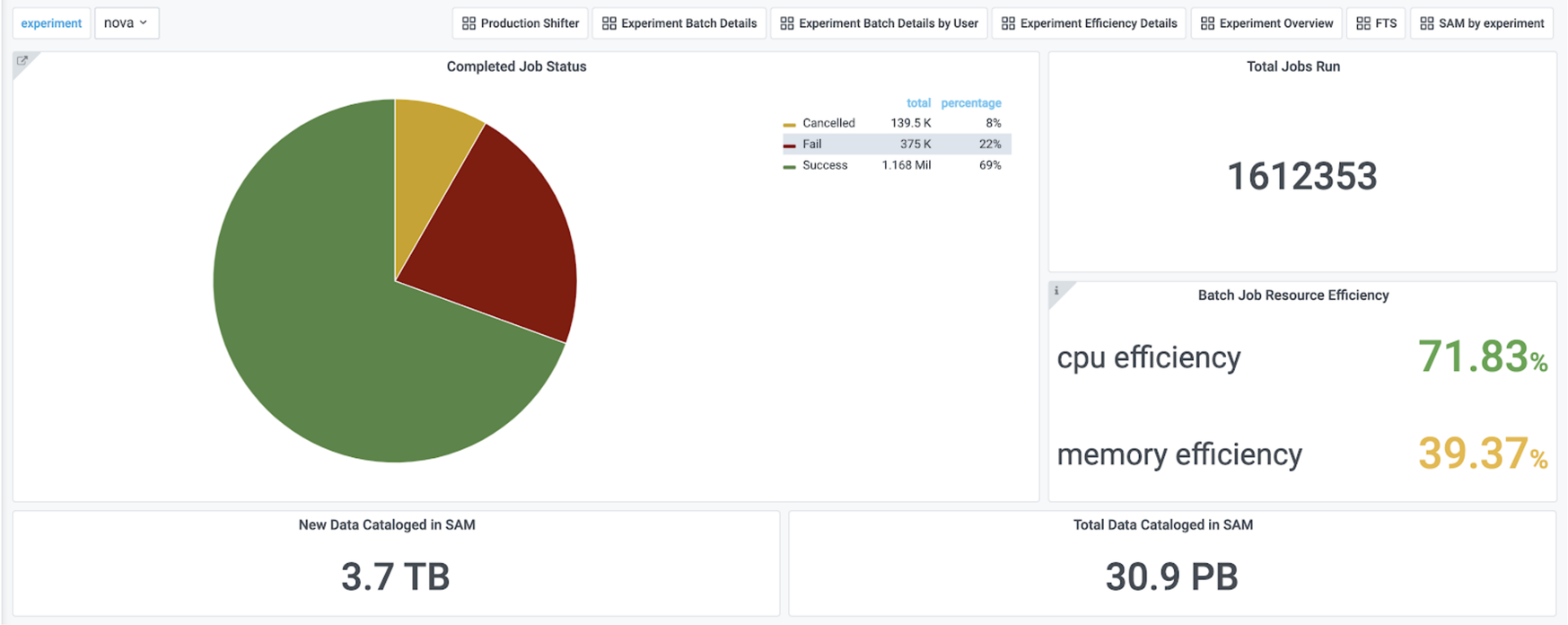


- This run starts on Nov. 19, 2020.
- 18 neutrino events have been recorded in the FD for this run.
- It's fully compatible with expectation within the uncertainty.

Lastest Neutrino Candidate



Computing Summary



- Between Feb 2 - March 2, 2021, NOvA ran a total of ~1.6M jobs.
- Production ran ~680k jobs.
- In the last month, we finished making our nominal samples of Production 5.1 campaign.
- We'll start systematics samples and re-spin data with the latest reconstruction in the next month.

Thank you.